

# *Sesia melanocephala*, a new species to the Belgian fauna (Lepidoptera: Sesiidae)

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**Abstract.** *Sesia melanocephala*, a new species to the Belgian fauna (Lepidoptera: Sesiidae). The presence of several specimens of *Sesia melanocephala* Dalman, 1816 was demonstrated in three Belgian provinces: Luxembourg, Liège et Namur. All specimens were collected as larva or pupa in *Populus tremula* trees between 4 April and 23 June, 2001. This is the first record of this species from Belgium. The distribution in Europe and the biology of the species are briefly discussed.

**Samenvatting.** *Sesia melanocephala*, een nieuwe soort voor de Belgische fauna (Lepidoptera: Sesiidae)

De aanwezigheid van verscheidene exemplaren van *Sesia melanocephala* Dalman, 1816 werd aangetoond in drie Belgische provinces: Luxembourg, Liège en Namur. Alle exemplaren werden als larve of als pop verzameld in *Populus tremula* tussen 4 april 2001 en 23 juni 2001. Dit is de eerste waarneming van deze soort voor België. De verspreiding in Europa en de biologie van de soort worden kort besproken.

**Résumé.** *Sesia melanocephala*, une espèce nouvelle pour la faune belge (Lepidoptera: Sesiidae)

La présence de plusieurs exemplaires de *Sesia melanocephala* Dalman, 1816 était établie dans trois provinces belges: Luxembourg, Liège et Namur. Tous les exemplaires furent récoltés comme chenille ou comme chrysalide dans des *Populus tremula* entre 4 avril 2001 et 23 juin 2001. Il s'agit de la première mention de cette espèce en Belgique. La distribution en Europe et la biologie de cette espèce sont brièvement discutées.

**Key words:** Sesiidae – *Sesia melanocephala* – faunistics – Belgium – distribution.

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## Introduction

During several visits during the past five years to the southern part of Belgium, with special attention being paid to the climatologically privileged region “La Gaume”, the authors were looking for the presence of Sesiidae both adults and immature stages, depending on the time of the season. With regard to *Sesia melanocephala*, all encountered *Populus tremula* trees were checked for signs of caterpillars, but the result remained negative although the species was found in the nearby Grand Duchy of Luxemburg on the occasion of a joint expedition by some entomologists (Cungs 1998).

On one of these trips on 5 May 1999 near Meix-devant-Virton (Luxembourg), the senior author discovered a group of old *P. tremula* trees, where, on a dead branch at a height of 6 to 7 meters, there seemed to be an exit hole of *S. melanocephala*. Not being able to get a closer view at that time, the authors returned a few weeks later with binoculars and discovered, besides the already mentioned exit hole three further holes, definitely caused by the species sought after. Unfortunately, all the holes were in branches which were too high to reach, and anyway, the season was already too advanced to look for the species itself.



Figs. 1–6. *Sesia melanocephala* Dalman, 1816. 1.– ♂: Latour (Luxembourg, Belgium), larva: 09-06-2001; 2.– ♀: Sart-Tilman (Liège, Belgium), larva: 26-05-2001; 3.– Typical swelling around a dead branch on *Populus tremula*; 4.– Branch infested with a young larva, protruding "frass"; 5.– Future exit hole just before emergence of the moth. Observe the thin remaining layer of bark; 6.– A freshly emerged female.

Therefore, the plan was made to return in year 2000, but circumstances prevented a visit to the area that year.

In early spring 2001, the senior author revisited the same area, paying special attention to open groups of sun-exposed *P. tremula* trees where the chance that lower branches would be infected was more probable. The exact co-ordinates of these biotopes were noted in order to return at the right time to look for the caterpillars.

On 4 April 2001, the senior author and a friend entomologist returned, first to the locality in Meix-devant-Virton with a ladder. At last, almost two years after its discovery, the branch with the first found exit hole of *S. melanocephala* could be collected. A systematic inspection of other suitable branches resulted in the observation of two small caterpillars of 0.4 cm and 1.5 cm. Considering the three year life cycle of this species, these young caterpillars were left in place. Suddenly worsening weather conditions prevented an inspection of the other noted localities.

On 19 May 2001, armed with a ladder, we visited again the area and were able to collect three last instar larvae of *S. melanocephala* in the vicinity of Etalle (Luxembourg). Also a first-year and a second-year larva were observed. And on 24 May 2001, the senior author found one more mature larva of *S. melanocephala* in Chenois (Luxembourg).

During a visit to a good friend entomologist in Liège, we visited a xerothermic biotope in Sart-Tilman (Liège), looking for Sesiidae in general but we soon noticed some nice groups of *P. tremula*. A quick inspection quickly revealed that *S. melanocephala* was present here too! A continued search resulted in 1 pupa and one last-instar larva. Thus, the presence of *S. melanocephala* was also established for the province of Liège.

Again in "La Gaume", an additional pupa of this species was found in Latour (Luxembourg) on 9 June 2001.

Finally, another pupa was collected in Blaimont (Namur) on 23 June 2001, adding the province of Namur to the Belgian distribution list of localities for *S. melanocephala*.

Since it is the first time *S. melanocephala* has been recorded for Belgium, the species has to be added to the "Catalogue of the Lepidoptera of Belgium" (De Prins 1998: 83) after *Sesia bembeciformis* (Hübner, 1806).

The adult is easy to recognise by the relatively large size as compared to other Sesiidae. On the other hand, it is the smallest Western-Palaeartic member of the genus *Sesia*. The forewing is almost completely transparent with brownish scales along the veins, the costal and anal margins, the discal spot and at the apical area. These scales are more apparent in the females. The abdomen is black dorsally with distinctive narrow yellow rings on the anterior margins of segments 2-4 and the posterior margins of segments 5-7. The anal tuft is

strongly mixed with yellow scales, a feature which is more prominent in the females. The antennae are yellowish brown.

### **Geographical distribution**

*S. melanocephala* has a Eurasiatic distribution (Laštůvka & Laštůvka 2001) but its distribution centre appears to be in Central Europe. The southern distribution border is poorly known and the species has never been recorded from the British Isles (Špatenka, Gorbunov, Laštůvka, Toševski & Arita 1999). The northern distribution border reaches as far north as the Scandinavian isles (Norway, Sweden, Finland and Denmark). *S. melanocephala* has been recorded also from Spain, France, Italy, Grand Duchy of Luxemburg, Germany, Switzerland, Austria, Poland, Czech Republic, Slovakia, Hungary, Romania, Slovenia, Croatia, Ukraine, Russia (European part), Belarus, Lithuania, Latvia and Estonia. Belgium can now be added to this list.

### **Biology**

*S. melanocephala* occurs mainly in open forests or open groups of *Populus tremula* trees (Salicaceae) often along roadsides or fields. The female presumably deposits her eggs separately at the base of a sun-exposed dead branch, directly protruding from the trunk. A necessary condition is that the tree had already formed a swelling around the dead branch. The young larva lives and feeds in this swelling. In the second year, prior to the second hibernation, the caterpillar starts the construction of a tunnel both into the interior of the trunk itself and in the dead branch. At this time, the tunnel has a typical oval cross-section. Considering the relatively short tunnels in the swelling and the wood of the trunk, the caterpillar is apparently a sap-feeder.

After the third and last hibernation, the caterpillar continues to enlarge the tunnel and constructs the future exit hole. A thin layer of bark, strengthened with silk, conceals it from the outside. This exit hole is usually situated on the upper side of the dead branch, thus preventing the pupa from falling down during the emergence process. The cross-section of the tunnel is now circular. During warm days, the caterpillar lies in the branch, while cooler days it usually remains down in the trunk. In late springtime, the caterpillar pupates in the tunnel without the formation of a cocoon. The pupa is very mobile and, like the larva, is able to retreat into the safety of the trunk at an amazing speed. Predation, for instance by woodpeckers, is, if existent, negligible. Both larvae and pupae can be found in dead branches ranging from a diameter hardly wider than that of the animal to those of 10 cm in diameter or more.

### **Conclusion**

Although the presence of *S. melanocephala* in Belgium could have been expected, considering the situation in the neighbouring countries, it is amazing this moth has not been discovered until now, especially since it appears to be widespread at least in the southern half of Belgium. It is not improbable it will

be detected in additional provinces where the food plant occurs. Unfortunately, at present there is no artificial pheromone available with the necessary efficacy to investigate the presence of the species in suitable biotopes.

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